





# The Dairy.

## SUGGESTIONS.

Don't Wait Too Long for Others.

If one wants to engage in dairying and cannot induce enough of his neighbors to join with him so that a creamery or cheese factory can be made successful, he need not hesitate to go ahead on an individual basis. And if he makes a success of the business this will do more to stir others along the same line than will any amount of talking unaccompanied by any action.

## YOU LEAD, OTHERS WILL FOLLOW.

During the period of time when the dairy industry is being developed in a section of country it often happens that individual farmers want to engage in dairying before there is sufficient interest in the community to make it possible to establish a successful creamery or cheese factory. Must one, therefore, wait until the interest grows, and others are ready to go into the dairy business? If so, the development would be slow indeed. Dairying is a line of work that can be engaged in on a community basis or independent of neighborhood co-operation. For the great majority the community plan is much the better, hence the RURAL WORLD advises its readers to patronize a creamery or cheese factory when one is in reach, and to encourage the establishment of these enterprises in their communities. But if one is not within reach of a creamery or cheese factory and there is no immediate prospect of one being established, it is still quite possible to engage profitably in either butter or cheese making.

**PRIVATE DAIRYING PAYS.**  
As a matter of fact there are many who declare and give figures to prove that they can make more out of independent dairying than can be made on the co-operative plan. This will depend somewhat on the market, but more on the skill that is put into the business. There is little difficulty in finding a market for first-class butter and cheese at good prices, so the principal consideration is to learn how to make the best good. This can be done by anyone who will go at it with the consciousness that there is much to be learned along these lines, and room for the exercise of great skill.

**ASK QUESTIONS.**  
The first thing to do before engaging in butter or cheese making on a commercial basis is to put one's self through a severe self examination. He should ask himself a lot of questions like these: What is the difference between a Jersey cow and a Shorthorn cow? Do results that have been obtained show that the Shorthorn or the Jersey to be the better dairy animal? Should a cow kept for dairy purposes be handled and fed differently from one kept for raising beef cattle? What sort of feed must be given a cow to enable her to give the largest yield of milk? What effect does food eaten have on the character of the milk? If butter or cheese is to be made, what should be the character of the milk? Will food change the essential character of milk? What is the most effective means of raising the percentage of butter fat in milk? If butter is to be made, what means may be employed to get the butter fat out of the milk? What is the best means of doing this and why? What is the best means for determining the quality of milk? When should cream be churned? What causes cream to sour? What effect does the souring of cream have on butter? And so on almost without end. By putting the mind to work asking questions one will soon reveal to himself that he has lots to learn; and if he will then go to work to get the information called for by this questioning he will soon be ready to go to work on a sound basis.

**PRIVATE DAIRYING.**  
At a meeting of the Vermont State Dairy Association a paper was read by Mrs. Carrie Nelson of Ryegate, who said she believed that the private dairy, if properly managed, could make a product that would compare favorably with that of the creamery and usually bring as high a price. She spoke of the necessity of clean stables, clean bedding and clean utensils, but we must note what she said about the effect of food on flavor of butter, as a certain professor has lately advanced the idea that it has no effect. Several years ago in August her cows were running in a field that had been lately plowed. For two or three different weeks her butter developed a "sour" taste, but when the cows were turned back into pasture, and soon the dealer wrote, "Butter is all right," and she took two first prizes on her butter. When the corn was harvested, they were turned out to another top dressed field, and quickly came another report, "Butter again of fine flavor."

**PUSHING THE DAIRY INDUSTRY.**  
The creameries at Alma and Blackwater, Mo., have been leased by the Brady-Meriden Creamery Co., and will be operated by them in connection with their big Kansas City plant. These people are pushing the creamery business in Missouri as if it has never been pushed before and if they receive the co-operation they are justly entitled to their efforts will go a long way towards making Missouri one of the greatest dairy states in the Union. These people are practical creamerymen; have had years of experience in the business and have an excellent market for their products direct to the grocery trade, and are therefore in position to give milk patrons satisfactory prices.—Harrisonville (Mo.) Democrat.

**DAIRY FORM HAS MORE TO DO WITH THE GOOD MILK THAN DAIRY BREEDING.**  
The lactical function is very largely an individual one, and while more good milkers are to be found in some breeds than in others, good milkers are to be found in all breeds. The successful dairyman will do well to keep this fact in mind and so pay more attention to dairy form than to pedigree. With Shorthorn cows, Polled Angus cows and just common scrub cows showing up records of over 300 pounds of butter, it is very evident that the so-called dairy breeds have no monopoly of the milking function.

**MISSOURI COWS—MEASURES.**  
Petherbridge and Lane tested this week two Jersey cows belonging to Mrs. Samuel Clark. The old cow's milk showed 10 per cent butter fat and a daughter 8 1/2 per cent. The gentlemen say both cows' milked so that there can be no fraud in the test. Mr. Petherbridge pronounces the old cow the best he ever saw.—Palmyra (Mo.) Herald.

**Shoo-Fly Mfg. Co., Philadelphia, Pa.**  
We have used several barrels of "Shoo-Fly" the past four years with satisfactory results. **STANDARD CATTLE CO.**

## OPINIONS.

Of a Long-Time Dairyman.

**Editor RURAL WORLD:** I always feel interested in the Dairy Department of your valuable paper, and read with pleasure its correspondence from noted dairymen from nearly every part of the United States. In this (Crawford) county, Kansas, we have six creameries and two skim stations. These, I think, are made a net for farmers to patronize. The keeping of dairy cows is a great benefit to a farm.

If the cows are cared for as they should be, they will be put in stanchions or tied with a halter or chain and will be well fed. If managed in this manner, the mature, which should all be saved, can be easily cared for. Scrape it all up and haul it out on the field, scattering it over the ground, not throwing it in a reckless manner, a forkful in a place. A load of manure put on the field in the right manner will, I believe, do 50 per cent more good than a load put out haphazard.

**BEEF VS. DAIRY FORM.**—Referring to the Minnesota Experiment Station's dairy tests, a statement concerning which I find in your issue of June 4, on the "Beef Form vs. the Spare and Angular or Dairy Form," I see there is a mistake in the addition of the figures giving the milk from the dairy cows. According to the amount that each dairy cow has to her credit, the average is 5,577 pounds of milk instead of 4,720 pounds, as the table has it. The six cows with the beef form make an average of 5,077 pounds of milk, which is reported as good, and is conclusive evidence that it does not follow that a cow giving a good mean is a profitable cow in the dairy.

I can not comprehend why this statement is made, as the cows with a beef form left a net profit of \$18.7 each, while the cows with the dairy form made a net profit of \$3.11 each. Here is a difference of \$15.59 in favor of the cow with the dairy form; or for the entire six cows with the dairy form, there will be the sum of \$93.48 gain over the six having the beef form.

**THE SKIM MILK** amounts to something to the farmer; but nothing is said about it in the report. I do not think this is a fair test, as the skim milk is usually conceded to be worth 3¢ a gallon for calves or pigs. We note that the cow that gave the most milk gave 5,574 pounds more than the cow that gave the least milk. Deducting one-fourth of the amount for cream, leaves a balance of 4,257 pounds, being 732 gallons, which, at 3¢ per gallon, is \$25.56. Is not this a clear profit also?

**BIG VS. SMALL DAIRY COW.**—I have handled dairy cows and helped to handle them ever since I can remember. They were not all dairy cows, but were kept as such. My experience is that the cow that gives a big flow of milk and that will test from three per cent up to more profitable than the cow that gives a small amount of milk and will even test six per cent.

Suppose one has a cow that will make 50 pounds of three per cent milk; I would prefer her to a cow that makes 25 pounds of six per cent milk. I have had cows that would give more than 50 pounds of milk a day, but never had any milk that tested less than 3.5, while one can scarcely find a cow that will give 25 pounds of milk and test six per cent.

I am thinking of a cow now that has been giving milk nearly 14 months since dropping her last calf. She will be fresh again in about two months. She tests close to one pound of butter per day by the Babcock test. This cow has the dairy form and will weigh about 1,400 pounds.

I have had the large dairy cow giving the big flow of milk standing alone side of the small dairy cow giving the small amount of rich milk; all were fresh at the same time, and were fed the same ration, so that the large cows got no more to eat than the small ones, unless they were at the straw stack. These cows were all registered, so there was a fair test. They were of two different breeds. From my experience, give me the large dairy cow with a heavy flow of milk. I need not be afraid then of feeding a calf milk, for fear of not having any left. I can raise a good calf and have some milk left for the pigs. And if she should get her udder spoiled, so that she would be unfit for dairy purposes, I can get a good price for her for beef.

**THE CRAWFORD CO. CREAMERIES.**  
—I am proud to think that we have one of the greatest dairy states in the Union. Most of them have not been running long, so there is a great deal yet to learn. We have men that are smart men, that have invested \$100 of hard-earned money in some of these creameries. For what purpose? To raise beef cattle on their farms? It certainly looks like a man intended to do this when he equips himself with the necessary machinery for the purpose. Yet one of these same men turns himself around and purchases a Hereford bull for the sum of \$300 to dairy with. That is what hurts the dairy industry. I am a great friend of the creamery, but to run one successfully, there must be dairy cows. Not having dairy cows is the chief cause of the howl that "Creameries don't pay." One cannot run a great milk without cows; so it is with a creamery, it must have milk. And one cannot make a good dairy cow out of a beef cow. I am not making a fight on beef cattle. I like beef to eat as well as anybody. Beef cattle are all right in their place.

I will admit that some of the cows of the different beef breeds are very good milkers, and then they will not hold out very long, and then such cows are so scarce that it does not pay a man who wishes to dairy to go to the trouble of raising them for that purpose. A man who does will say, nine times out of ten, that there is nothing in the dairy business.

**H. N. HOLDEMAN.**  
Crawford Co., Kan.

**VALUABLE NOTE BOOK FREE.**  
Union Pacific Railroad Company has just issued a publication entitled "Outdoor Sports and Pastimes." It is one of the best publications of its kind ever issued, contains all that can be learned in relation to base ball, bicycling, cricket, croquet, foot ball, golf, lacrosse, lawn tennis, polo, quoits and outdoor sports of all kinds. It is a very useful little book, well printed, with diagrams to illustrate the text. No devotee of any of the sports enumerated should be without it. It contains all the up-to-date rulings of the United States Golf Club Association, 25 foot ball rules, with a dozen minor notes; also 50 rules for cricket. If this book was sold in book stores it would be considered cheap at fifty cents, but J. P. Aglar, General Agent, Union Pacific R. R., 903 Olive street, St. Louis, will mail the same free on receipt of 5 cents in stamps to cover cost of postage.

## THE MISSOURI DAIRY MEETING.

**Editor RURAL WORLD:** I have just read Mr. Dille's letter in the RURAL WORLD of June 20, asking that the next meeting of the Missouri Dairy Association be held in Kansas City. It seems to me that there is a good bit of selfishness in such a request. The last meeting was held at Mr. Dille's own town, Holden, which is within 20 miles of the western line of the state, and now he asks that the next meeting be carried still further to the west, even to the state line. What claim has the western part of the state on the Association that that section should be favored so much more than the eastern part? If my memory serves me aright, the western part of the state has had practically all of the dairy meetings. The first regular meeting of the Association was held at Jefferson City, and the next six meetings were held at points westward of the capital. Then the Association managed in some way to get to the eastern side of the state and hold a meeting at Louisiana. Palmyra wanted the next meeting, but we were told that it would not be well to hold two meetings in succession so close together as are Louisiana and Palmyra, and the meeting was held at Brookfield. We hoped then to get the next one in eastern Missouri, but the tendency was still westward and Holden got the prize. And now Kansas City is after the coming meeting.

As an eastern Missouri dairyman, I want to protest, and ask that the meeting be brought eastward at least to some point near the center of the state. I hope other dairymen in the eastern part of the state will make themselves heard on this subject; if not, and once with the border, Missouri are they will probably get the convention and not to be blamed for doing so.

**A. H. COLLINS.**

**Audrain Co., Mo.**  
The Executive Committee of the Dairy Association will be glad to hear through the RURAL WORLD from the dairyman of the state relative to the location of the next convention of the Association. Secretary Chubbuck has a number of letters on file from western Missouri people asking that the next convention be held in Kansas City. The wishes of other sections of the state will be fully considered if they are made known. If not, as Mr. Collins says, no one can find fault with the western Missouri dairyman if they capture the convention.

## HOW TO MAKE CHEESE.

How Much Butter and Cheese From Milk?

Will you give directions sufficiently explicit so that a person with little experience could make good cheese? I have the appliances for making in the old way, that others have used. While I have made butter for a long time, and keep from 12 to 20 cows, I do not know how much butter should be made from 100 quarts of milk, neither do I know how many pounds of cheese should be made from that amount. I wish to know which would be most profitable, to make my milk into butter or cheese. Either way, it must be made up at home, as there is neither creamery nor cheese factory in this section. There is a good market for cheese, as everybody makes butter, and there are creameries all around us, but too far for us to reach. We can make butter that brings top prices, and have all of the appliances for making both. There is a good cheesemaker that I can get to make the cheese for me, if I cannot be told how to do it myself.

**G. I.**  
**DEPENDS ON THE BUTTER FAT.**  
The amount of butter that should be made from a given quantity of milk depends entirely on the per cent of butter fat which the milk contains. One hundred quarts of milk weigh from 26 to 29 pounds, and it is much easier to calculate by weight than by measure, let us adopt the weight system. One hundred pounds of milk averaging three per cent fat contain three pounds of pure butter fat. To find the amount of commercial butter which this fat will make, add one-sixth the weight of the fat to itself, and we have 3 1/2 pounds of butter, which should be made from the 100 pounds of three-per-cent milk, provided no fat is lost in skimming and churning.

Following the same principle, 100 pounds of milk containing four per cent of butter fat will make 4-2/3 pounds of butter. It is generally considered that well-worked creameries contain 35 per cent of butter, which should be made from the 100 pounds of three-per-cent milk, provided no fat is lost in skimming and churning.

Having obtained the amount of pure fat in a certain quantity of milk, we can then calculate the equivalent amount of butter fat to test in, viz., by dividing the amount of fat by 15-100, or by adding one-sixth of the fat to itself. The latter method is quicker, and reaches practically the same result.

**HOW MUCH CHEESE?**—To calculate the amount of cheese that should be made from a given quantity of milk, the butter fat affords almost, if not quite, as fair a basis as it does in buttermaking. By repeated experiments, it has been found that about 2-1/2 pounds of cheese are made for every pound of pure butter fat which the milk contains. Figuring on this basis, 100 pounds of three-per-cent milk should make 2-1/2 x 3, or 7 1/2 pounds of cheese.

The easiest and surest way, then, for G. I. to know how much butter and cheese his milk should make, is to purchase a Babcock tester, and find how much butter fat the milk contains, for no one can tell him otherwise, except by actually making the butter and cheese. He ought to have a Babcock machine, anyway, to test his cows, and see whether they are all paying for the food they consume.

**PRACTICE IMPORTANT.**—There are so many scientific points about cheesemaking that can be learned only by close study, and so many details in the process that can be mastered only by practice.

**"He That Any Good Would Win"**  
Should have good health. Pure, rich blood is the first requisite. Hood's Sarsaparilla, by giving good blood and good health, has helped many a man to success, besides giving strength and courage to women who, before taking it, could not even see any good in life to win.

**Hood's Sarsaparilla**  
Never Disappoints

that it is quite impossible to give such directions in a brief article as will enable an inexperienced person to make a good cheese. However, some of the general movements in the process may be so outlined as to be of interest and value until more detailed information is obtainable.

The first step in cheesemaking (we will consider the manufacture of Cheddar cheese, the common American variety, only), is the "setting." After the milk is placed in the vat, it is gradually warmed to 28 degrees, and during the warming, it is stirred frequently to prevent the cream gathering. It is then tested for ripeness, either by means of a Marshall rennet test, which is the best, or by adding a teaspoonful of rennet of known strength to a teaspoonful of the milk, stirring it in quickly, and noting the time required for coagulation. If the coagulation takes place in about one minute, the milk is sufficiently ripe, i. e., has enough lactic acid developed, for the addition of the rennet. If coagulation comes too slowly, then one must wait before adding the rennet. The ripening of the milk may be hastened by adding to it a starter, consisting of clean sour milk either at the time the milk is put in the vat, if it seems very sweet, or after it has been warmed and then found not ripe enough.

For small amounts of milk, rennet tablets have been manufactured, which are very handy and satisfactory in a home dairy.

If the rennet extract is used, it should be added to the milk at the rate of two to three fluid ounces to 1,000 pounds of milk. The rennet should be diluted with 20 or 40 times its own bulk of cold water before it is put in the milk, and then stirred quickly and thoroughly through the vat. Then allow the milk to stand quiet, except for a gentle stirring of the vat, until the curd is forming, until it is thoroughly coagulated, when it is ready for the second step, cutting.

**HANDLING THE CURD.**—The curd is ready for the knife when it will break with a clean fracture under pressure, or when it will cleave entirely away from the side of the vat when pressed with the fingers. The curd is usually cut twice with the perpendicular knife, once each way of the vat, and once with the horizontal knife, lengthwise of the vat. As soon as the cutting is done, the curd should be gently agitated with the hand to prevent the kernels pressing together, and to be sure that no uncut curd remains in the corners. Then the heat may be turned on gently, and the third step begun.

This step is the heating or cooking stage, and during this, the whole mass is kept continually stirred with the curd rake, while the temperature is gradually raised to about 36 degrees. Then the heat is turned off, and the curd is allowed to settle. A bit of the curd is pressed together in the hand and applied to a hot iron. If on pulling it slowly away from the iron, it draws out in fine threads one-eighth to one-quarter inch long, the whey may be drawn from the vat. When the curd is ready, the whey should be drawn off as quickly as possible to prevent a too rapid development of lactic acid in the curd. To hasten the removal of the whey, gather the curd evenly toward the upper end of the vat, making it not more than six inches thick, and make a little canal directly through the center by cutting the curd with a knife, and then pressing it away from the center.

The fourth step in the process is the cheddaring, or matting. As soon as the curd has matted sufficiently to keep the particles together, each mass of curd is cut into blocks to eight inches wide, and these are turned over so that the upper sides come in contact with the bottom of the vat. After a short time, the blocks are turned over again, and a third time, after an interval of about ten minutes. On the fourth turning, the blocks may be piled two or three deep, and still deeper on subsequent turnings, until the curd is ready to be ground.

No time limit can be placed on this cheddaring process, for the changes taking place in the curd depend altogether upon development of lactic acid in the curd. To produce the proper changes, the curd is kept warm, and the turning and piling assist by preventing one part of the curd from being exposed all the time to the atmosphere. During this process, the curd is kept warm. A great change will be noticed in the curd. When the turning first began, it was tough and spongy, but at the end, it will have a smooth, glossy and elastic appearance, which is the result of the development of lactic acid. At this stage, the curd should draw out into strands an inch or two in length, when applied to a hot iron.

**GRINDING AND PRESSING.**  
The grinding of the curd then takes place, and this is done by running it through what is known as a curd mill. Mills of the better class are constructed of a series of knives placed at right angles to each other, so as to cut the curd into little strips about one-half inch square. After cutting, the curd is stirred to eight inches wide, and fork to keep the pieces from matting together, and salt is added at the rate of two pounds to 1,000 pounds of milk. The curd is stirred thoroughly to mix the salt evenly through the mass, and when it is all dissolved, the curd is ready to put in the press. Here it is kept under uniform and continuous pressure for about 20 hours, and then goes to the curing room.

For the first ten days, the cheese should be kept in a temperature of 65 to 70 degrees, and after this time in a temperature of 60 to 65 degrees. It should, also, be turned daily to prevent molding, and to preserve a good shape. When from four to six weeks old, the cheese may be eaten, though the degrees of curing depends on the temperature, the process going on faster the warmer the room.

For more detailed information G. I. would do well to send \$1 to the "Rural New Yorker" for "Milk and Its Products," by Prof. H. H. Wing. This not only describes cheesemaking, but also gives valuable information about the care of milk, and buttermaking.—Rural New Yorker.

**PAN-AMERICAN EXPOSITION AND DAIRY CATTLE.**

"Hoard's Dairyman" says: Owing to the special efforts put forth to advertise the World's Fair at Paris, which was formally opened last month, the general public has learned comparatively little, as yet, concerning the unique Exposition which is to be held in Buffalo from May 1st to November 1st, next year. This is to be specifically an American Exposition, and its primary object is to show what the Americans, North and South, can produce, and thus develop and enlarge American independence and continental commerce.

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**The Modern Remedy Co., Kewanee, Ill.**

Mr. W. L. Buchanan, who developed such masterful executive ability as Superintendent of the Agricultural Department of the Columbian Exposition at Chicago, and has since had several years acquaintance with the South American problems, as the representative to the United States to the Argentine Republic, is the Director-General of this Pan-American Exposition, and this in itself suffices to insure its success and merit as an exhibition of American development and possibilities. No man knows better than he what is needed to bring about a larger and more sympathetic acquaintance between the different countries and peoples of the Western Hemisphere, or what are the barriers to be removed in order to enlarge our trade relations with each other. Not without good reason do we look forward to the Pan-American Exposition of 1901, under the direction of Mr. Buchanan, as providing a model for all future expositions.

It is of special interest to us, as it will be to all dairymen, to learn that Mr. Buchanan is planning for another test of dairy cattle, on somewhat the same lines as were followed at Chicago in 1893, but to last only some twenty or thirty days, and to be freed from all misleading and useless complications and conditions. It is to be expected, we think, that he will develop "rules and regulations" out of his own experience, and will not invite the different societies representing breeds, to come in and wrangle and then, because they cannot have every minor point decided to their satisfaction, stay out.

## NOTES.

**SILAGE.**—The results obtained from feeding ensilage as compared with dried fodder have been surprising to many. We are all willing to accept the teachings of the chemist that the value of any fodder depends upon the amount of digestible matter it contains. We are also ready to conclude, with him, that the putting of any article into a silo cannot add to its food values. Still, every farmer who has fed ensilage and intelligently observed results in silage is inclined to think there is a value to it that the chemist does not find. This conclusion has also been reached by nearly, if not quite, all of the experiment stations where exhaustive feeding trials have been made.

Professor Henry says:

1. The losses of nutrients in the two methods of curing are practically the same.

2. There is little difference in the digestibility of corn silage and the same fodder in a dried form.

3. When areas of the corn field are compared for making milk there is a gain for the silage of from five to eleven per cent.

Averaging the results obtained by Professor Henry we find a net gain of eight pounds of food in every 100 pounds handled. When viewed in this light it should become apparent to all that the silo has an important place in our agriculture.

**B. WALKER M'KEEN,**  
Secretary Maine State Board of Agriculture.

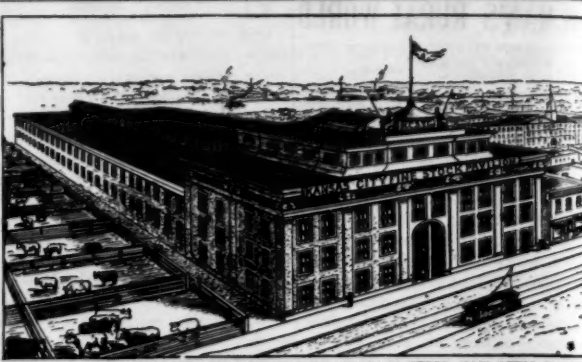
## THE FARM AS A FACTORY.

Our modern agriculture demands that the farm shall be something more than a mere producer of raw material to be worked into a finished product by some one else. The times are so rapidly changing in this particular that the best farms all over the country now conform more nearly to this changed order of things. Where it was the custom a few years ago to grow cattle, hogs, and sheep, merely to have them sold as "stockers" to some man who completed the process by fattening and marketing them, they are now fattened and finished at home and by the man who grew them. Farm cheese



and farm dairy butter are now taking high rank as products of the farm, and farm-made sausages may also be referred to. Of course all these changes and tendencies—we have only pointed out a few of them—for better and for businesslike methods on the farm.

They call, above all else, for strong, durable and highly efficient power. If the power is portable it possesses many advantages over the stationary power. In many sections it is found advantageous to have a community power—one which is adapted to the use of the Rumely traction engine, a cut of which we show with this article. The Rumely engines differ from others of their class in their easy steaming qualities, and that they possess unusual actual horse power. In addition they are very simple and easy to handle. They are economical in fuel, and make them fast travelers on the road. It will be well for any farmer, or association of farmers who think of buying an engine, to look into the merits of the Rumely before buying. Address the Rumely Company, La Porte, Ind., for a handsome free catalog.



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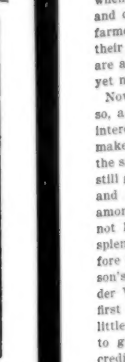
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The result of years of experience in the use of the Loomis Drill, Loomis & Nymann, Tiffin, Ohio.

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The Best Cider and Wine Mills made. Will make 20 per cent more cider than any other. Guaranteed. Perfectly Adjustable. Price as low as any first-class mill. Write for circulars. **WHITMAN MFG. CO., St. Louis, Mo.**

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AND GENERAL PRODUCE wanted on commission. **Hudson Bros. Co., 212 N. 3rd St., St. Louis.** Refer to any Banker or Rural World.



NEW FINE STOCK PAVILION FOR PEDIGREE CATTLE, HOGS AND SHEEP, NOW BEING ERECTED BY THE KANSAS CITY STOCK YARDS COMPANY AT KANSAS CITY, MISSOURI.

The reputation of Kansas City as a market for pedigree stock has grown to such an extent as to require a structure devoted entirely to its use. This building will occupy a little more than half an ordinary city block, will be built mainly of brick and will cost about \$40,000.00. There will be still capacity for the hundred cattle and open pens for as many more, with the arranged Sale Ring of any like building in the world. The amphitheatre will have a seating capacity of eight hundred, heated by steam and lighted by electricity. The stable will have ample wash rooms furnished with both hot and cold water for use of exhibitors. The building will be completed Sept. 1st. It will be used by the National Shorthorn and National Hereford Breeders Associations for the sale cattle at their great Show in Kansas City, September 16th-26th, 1900.

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SOMETHING ENTIRELY NEW  
The new Samson windmill is the strongest and most reliable ever made. Tested a whole year under careful scrutiny. Now strong double gear in right hand only. Perfect center line draft gives a direct lift to the mill—no tedious, overhauling gears or cranks, as the load is on four bearings instead of one, with all other mills. See our circular. Do not miss this. Send for circular. Ideal Art Book. FREE.  
STOVER MANF. CO., 534 River St., Freeport, Ill.

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—and hundreds of other jobs with the strength of 15 men. Most Convenient and useful power ever invented. Costs only TWO cents per hour to run. Especially adapted to farm work.  
IT IS A NEW ENGINE MADE BY  
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**WELL DRILLING**  
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Machines are portable and drill any depth both by steam and horse power. Twenty-one different styles. Send for FREE illustrated catalogue. Address  
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MAKE A GOOD WAGON  
Unless a wagon has good wheels it is no use. The Electric Wheel Co. has just introduced a new wheel. They are made high on the axle, and are made of the best material. They can't get loose, get or break. They are the best wheels ever made. Electric Wheel Co., Box 74, Quincy, Ill.

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Baron Thorndale 135.00; Dark Roan of April 30, 1896 at \$200. or will trade him for heifers. Also 6-year bulls by Baron Thorndale and out of dams of Easterday and Secret, these strains have been in the herd since 1885, and are great milkers. Call on or address

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Grand Duke of Haverhurst 12605, sired by Waterloo; Duke of Cedar Vale 126065; Duke of Waterloo Duke of Cedar Vale 34 126068; heads out; herd of pure Baines and Hales topped, pure Scotch and Scotch topped cows of the most fashionable families.

**80 Young Bulls and Heifers**  
for sale at reasonable  
prices. Parties met at  
train. Farm 2 miles out.

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Special offering, 30 yearling bulls, 30 yearling heifers. Largest herd in the State and 30 pure Cruickshank cows. Also some Scotch female. The great sire Goodwin 15975 in service, note his breeding—sired by Imp. Spartan Hero 77922, out of Imp. Golden Thistle, Vol. 36, by Roan Gauntlet, Golden Lady by Champion of England. This blood made Cruickshank famous.

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**SHORTHORNS, BERKSHIRES and JACKS.**  
Shorthorn Scotch or Scotch Top and Bates mostly. Berkshires best blood in America and England.  
Stock of all ages and both sex for sale. Call on or address, N. H. GENTY, SEDALIA, MO.

**ST. LOUIS NATIONAL STOCK YARDS,**  
THE LIVE STOCK MARKET OF ST. LOUIS.  
Located at East St. Louis, directly opposite the city of St. Louis.  
Shippers should see that their stock is billed directly to the  
**National Stock Yards.**  
C. C. BROS. & CO., ST. LOUIS, MO. J. E. JOHNSON, CHICAGO, ILL. J. C. BROS. & CO., ST. LOUIS, MO.

**CHOICE SHORTHORN BULLS FOR SALE!**  
13 Scotch and Scotch topped bulls of the low down, blocky type. One is a Cruickshank Orange Blossom, one a Ramsden. Also a few choice heifers not related to bulls. Address, **PURDY BROS., FAIRVIEW STOCK FARM, HARRIS, MO.**

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"BLACKLEG." **"Pasteur Vaccine"**

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**BLACKWATER SHORTHORNS!** F. M. MARSHAL, Prop.,  
BLACKWATER,  
Cooper County, Mo.  
Herd headed by the Cruickshank Bull, Orange Hero, by Godoy. Females are of pure Scotch and  
pure Bates, with individual merit the standard. Young stock of both sex for sale.

## CRYSTAL SPRINGS SHORTHORNS

12 Yearling Bulls and 15 Yearling Heifers, all reds, for sale, out of cows of the Kirklevington. Accombs, Rose of Sharon, Princess, Braconette and Goodness families, and sired by Chief Violetta (111304, Kirklevington, Duke of Haselhurst 11th, 135053 and Wooddale Victor 135051). Come and see them, they will bear inspection. Farm joins town.

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The only positive protection for Horses and Cows.  
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OWNERS OF A LIVE STOCK AUCTIONEERS.  
Write before claiming dates.

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**\$5. bulk \$4.25 to \$4.70. Common to choice  
cokers.**

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**SHORTHORN CATTLE,**  
stock heifers \$2.50 to \$4.10, bulk \$2 to \$3.35.  
Fancy native heifers \$4.75 to \$5, very few  
on sale; choice native heifers \$4.40 to \$4.75.  
Good native cows and heifers \$3.60 to  
\$4.35, medium cows \$2.75 to \$3.50, fair  
cows \$2.50 to \$2.75; inferior, light and old  
canning cows \$1.50 to \$2.50. Bulk of the  
Southwest.  
Berkshire Hogs, Angora Goats, Light Brahmas  
and Good Seabright chickens. Stock and eggs for  
sale. Call on or address  
**J. J. LITTLELL, Sturgeon, Me.**  
**H W KERR**

all cows \$2.75 to \$3.75. Veal calves full range \$4 to \$6.75 per cwt., bulk \$5.50 to \$6.50. Heretics and yearlings \$3.25 to \$4, bulk \$3.50 to \$3.90. Bulls full range \$2.75 to \$4, bulk \$3.25 to \$3.50, stock bulls \$2.75 to \$4.00, bulk \$3 to \$3.40. Milkers and springers full range \$20 to \$50 per cow and calf, bulk \$20 to \$30.

Receipts in the quarantine division for the week amount to 241 cars, a decrease of about 27 cars compared with last week, and 112 cars more than arrived a year ago. The steer market figures about 15c per cwt. lower than a year ago.

week, cows and bulls 15 to 35c and calves 25 to 50c. Quality hardly as good as previous week. Best cattle in quarantine division this week averaged 971 lbs., and sold at \$4.60. Fed steers, 900 to 1,300 lbs., sold at \$4 to \$5. Grass steers, 600 to 1,061 lbs., \$3 to \$4.50. Bulk \$3.40 to \$4; cows and heifers \$2.50 to \$3.75.

\$2.75 to \$3.30; stags and oxen \$2 to \$4.30; calves \$7 to \$11 per head; yearlings \$2.75 to \$3.50 per cwt. The calf market shows a decline of 75c to \$1.50 per head compared with week before last.

HOGS—Tuesday, fair run, market 5c higher, bulk selling at \$5.15 to \$5.20, top \$5.30. Wednesday, steady, closed \$5.20.

lower. Thursday, prices paid at opening bid 10c lower than Wednesday's opening. closed shade better, bulk \$5.05 to \$5.10. Friday, moderate receipts, market 5c higher, bulk \$5.10 to \$5.15. Saturday, very light run, fully 10 to 15c higher, top prices paid for select 20-lb. hogs \$6.35. Range of values: Butchers and processors.

For more information, contact J. H. Powell, 800n. Call on or address  
POWELL BROS., LEE'S SUMMIT, MO.

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**90 SHORTHORN BULLS AND HEIFERS**  
For Sale. They were sired by the famous Red Buttery 100704. Grand Victor Leonard 125644, and the 5335 bull, Duke of Hardon 123057. First and last pure Cruickshanks the other two Cruickshank

\$5.35, Yorkers and shippers \$5.20 to \$5.30  
 heavy pigs \$5.10 to \$5.20, light pigs \$4.25  
 to \$4.80, rough heavies \$4.40 to \$4.80.  
**SHEEP**—Receipts few part of week  
 moderate, market steady. Thursday 10  
 to 15c lower, Friday 15 to 20c lower. Satur-  
 day steady at Friday's prices. Range  
 of prices: Best lambs, \$4.75 to \$5.20;

**Aberdeen-Angus Bulls**  
Of the richest blood lines and most excellent quality, 12 to 18 months old at \$100 to \$175. Herd bull by

**N. G. DAUGHERTY & SON,**  
Douglas, Knox Co., Illinois

**HOGS**—Light row, market opened steady at Saturday's prices, bulk good hogs selling at \$2.25 to \$2.30 per cwt.

**SHEEP**—Receipts light, market higher, best lamb selling at \$6.75, best sheep \$4.75 per cwt.



The unprecedented dearth of entries in almost all of the smaller eastern meetings this season is beginning to be generally noticed and track managers are casting about to find the cause of it, says "Trotter and Pacer." Never before have the fields been so small in the meetings which have been already held. It will be interesting and profitable to know the reason for this. Doubtless the backward spring is responsible in some measure, especially in the case of the meetings whose close closes prior to June 1, but even within the past few weeks some of our meetings have been declared off for lack of entries, and it would be a mistake to attribute the cause solely to the unfavorable season. We are inclined to think that the growth of the interest in amateur racing may be responsible for a good deal of the trouble. The popularity of gentlemen's driving clubs and matinee driving has had a wonderful development during the past year or two, and the summaries of the races and the chronicles of Speedways doing so well that the loss of many a horse which has been removed from the race track to gratify the recreation of the amateur sportsman. The growth of this branch of the sport has

### FEEDING MARES AND FOALS.

I believe in feeding some grain to both dams and foals during the summer, whether the dam is required to work or not. When the dams are required to work, I feed them about three gallons of oats and about three gallons of bran per day, with all the good hay or grass they will eat at noon, and give them a good pasture at night. Even when they are on grass it will pay to feed some bran when working. Always keep the foal in a good box stall when the dam is working—and, when the foal is weaned, no longer allow it to get its head through, as it will be constantly fretting. Great care should be taken to allow the dam to cool, if warm, before suckling the foal. The foal should be taught to eat as soon as possible by mixing a small quantity of crushed oats and bran with a little sweet milk—just enough to wet it. Have a small dish for the purpose, and never take the dam away without giving it something to eat after it is two or three weeks old. A good way to start the foal to eat is by taking the dish and holding it up to its mouth with one hand, and getting it to nibble at it. In that way it will soon learn to eat. After the foal is weaned, it should be allowed to eat at the same time as the dam, in a separate box in another corner of the stall. And be careful to see that each commences to eat on its own feed. In that way you may know just what each one gets. Sometimes dams are cross when feeding, and will not allow the foal to feed at the same time as the dam. If this is the case, it is better that they each have their own place.

Goldust, 1, Lofly Goldust, son of Goldust, 160, founder of the family, dam by Tom Crowder, second dam by Tom Hall Star of Saline, 2:30, at Nevada, Mo., Sept. 6th, 1898, is a stable companion. The union of these two Morgan horses should furnish a good source of good roadsters and farm horses, and of race horses not among the impossible chances. Dr. A. J. Roberts of Fort Scott, Kan., is having a good run of custom for Harry Hodgson, 940, son of Belmont and Minnet, by Harwood.

The Dr. has purchased three young stallions from Dr. Robinson of Wyandotte, Mo.: Denton, 954, by Dacosta son of Almont Wilkes, son of Almont, 2:35; first dam by Harry Hodgen, second dam by Joe Elmo. Scott Temple, 3315, is by Harry Hodgen; first dam by Samsue, of the King; second dam Mecca by Onward; third dam Vispion by Almonator. This fellow has been set back by a bad cold cut. The Dr. is confident of a trotter of the first water. Dacosta, H. 3261, sired by Dacosta, by Almonator Wilkes, son of Almont; first dam by Harry Hodgen; second dam by Joe Elmo, will be developed at the pace. These colts may be developed for speed.

Interest is growing in the harness horse class. The American Good Horse 416, is used as a family horse, and seems at home in a surry or driven in a rumble about by a lady. The American trotting horse soon adapts himself to circumstances, and is a winner wherever you place him.

Frank Bellows, 2:52, 18758, is in the state of the art. He is by Hirschbach and made his record at a 4-year-old. The dam is by a grandson of Jay Gould, the fastest son of Hambletonian by the re-

**Crimson Clover**  
The King of Soil Improvers,  
Makes fine winter and spring grazing  
splendid early green feed or a good hay crop.  
Our seed is thoroughly matured and of test  
germination.  
Write for prices and Fall Catalogue telling  
about all Seeds and Grain for Fall sowing.  
**T. W. Wood & Sons,**  
SEEDSMEN, RICHMOND, VA.

bler was even then already eating the life out of the thoroughbred horse, and now he has nearly finished him. It is a wisdom on the part of the trotting horse breeders if they do not permit the same fate to befall the trotter. Trotters are men even now who would like to see half and three-quarter mile trotting races. In other words, the trotter converted into a mere gambling machine, such as the thoroughbred has been.

As an antidote to this tendency, I would be glad to see some of the old-time long heat trotting races. I think our three-in-five races are already a conservative factor. That, through their industry, while the thoroughbred is getting a mile skate. Very much in the way of the trotter is in this respect still improving. We must not see how far the three-in-five races, not three-quarter mile races, can be run. It is not to be a horse of less and less stamina; real horses are not necessary for a half or three-quarter mile races. The moment the trotting horse men yield to the wish

Eclipse, and her last at 23. She was  
 28 when she died. Great Duches, a  
 Gracchus, dropped her thirteenth foal at  
 the age of 24. Lady Burton, by Sir  
 20 foals, her last at 25. Magnolia, by  
 Glencoe, was 20 when she produced the  
 celebrated Kentucky, and Lexington, the  
 sire of Kentucky, was 11. Blue Bonnet  
 by Hedgeford, had her first foal at 11  
 and her last at 24. She had 10 foals, Light-  
 ning when she was 18, Thunder when 21  
 and Leadstone when 22. Nantua pro-  
 duced 15 foals, her last when she was  
 25. Longfellow by Learning, 12, was drop-  
 ped. Miller's Damsel produced America  
 Eclipse at 12, and her last foal came when  
 she was 18. Reel, by Glencoe, had 10  
 foals, Lecomte at 12, Priores at 15 and  
 War Dance, by Lexington, at 21. The latter  
 was a wonderfully vigorous horse, his  
 15 daughters were all sold to the  
 army for stud. The great Pocahontas,  
 daughter of Glencoe, had 15 foals, the  
 last when she was 25, and she died at 31.  
 She produced Stockwell at 12, Ratapala  
 at 13, and King Tom at 14. Diomed, who  
 died at the age of 31, got Florizel when  
 23 and Sir Archy, his best son, when 24.  
 Sir Archy was dropped when 25.  
 25, 8, and 10, and she was 2 years old  
 when these facts will help breeders to deter-  
 mine at what age their mares can be im-  
 bred to advantage, and how long the  
 may expect them to continue fertile. As  
 matter of course, a great deal depends  
 upon how a mare is treated. If she is not  
 kept in healthy condition, the barren  
 mares will not produce. It is better  
 even, to be bred for the first time at 10  
 than to be bred at 12, and to be bred at 10  
 even 15, and acquire distinction in the

**SPRINGFIELD, • • MASS.**

D. R. THOMAS, Monett, Mo., breeder of Jacks, Shorthorn Cattle, Registered Poland China Hogs, B. P. Chickens and Bronze Turkeys. 80 acres improved land for sale cheap or will trade for Jack stock.

**TIRE TIGHTENER**  
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**& Harness Wrench**

SETS TIRES for less than  
Men's harness for al-  
most nothing. Get one  
for your car. Take  
orders at 80% profit. Most ingenious thing you ever saw.  
Everyone buys on sight. Nebraska farmer made 600, last  
summer among his hunters. Agents wanted for  
& Farmers Meetings. H. Hunter Co., 438 E. 2d St., Racine, Wis.

It would not be proper to prescribe a remedy for Texas Itch, when perhaps the disease may be due to chicken lice; wo

**PACIFIC RAILROAD.**

We have just received from the Union Pacific Railroad a beautiful publication containing forty colored views of scenery between the Missouri River and California. This is one of the most artistic publications ever issued by any railroad company. The same will be mailed free on receipt of 4 cents in stamps for postage, on application to J. F. Aglar, General Agent, St. Louis Mo. It is well worth the money; send for it.











